VEGETATION MANAGEMENT PLAN

Vegetation Management

To deliver your electricity safely and reliably, the City of Shasta Lake follows a regular schedule for inspecting and trimming more than 60 miles of distribution lines and 15 miles of transmission lines in our service area. Throughout the year, the City will clear vegetation away from power lines, poles and transformers to reduce the chance of power outages. An annual tree trimming contract with contractors takes care of routine trimming and electric crews/contractors take care of emergency/dangerous trees. It is important to note that the City of Shasta Lake does not provide tree trimming services for electrical service connected to your home. Should trees near your service line require trimming, you or your tree trimming service may call the City to de-energize the lines before the project begins. There is no charge for this service.

Inspections

To maintain a reliable system, the City of Shasta Lake crews inspect all lines for vegetation issues at least once a year. This entails driving/walking the entire system and noting any issues to address such as lack of clearance or dead trees that pose a risk to the electric lines.

Tree Pruning

To maintain the reliability of the electrical system, the City generally needs 12 feet of space between tree canopies and overhead distribution power lines. But for fast-growing trees such as mulberry or eucalyptus, the City may need as much as 20 feet of clearance to prevent power outages. For transmission lines the City tries to keep the vegetation directly below to a minimum, and keep all trees cleared back a minimum of 20 feet.

Directional pruning

The City removes only branches that conflict with power lines. The City uses a technique called directional pruning to redirect a tree's growth away from the lines. This technique is recommended by the International Society of Arboriculture, the American National Standards Institute and the National Arbor Day Foundation.

The City will remove entire branches where they attach to the main trunk of the tree. This technique helps protect the tree from disease and insects.

Sometimes the situation requires pruning only one side of the tree, pruning one side more than the other, or pruning just the middle of the tree. These variations are known as side pruning or "V pruning." Trees may appear unbalanced at first, but a healthy tree will cope with the changes, and its appearance will soften over time.

Tree removal

The City cannot use direction pruning on some trees, such as redwoods or palms, because they grow straight up from a so-called central leader. When these trees are planted under power lines, the City must cut back the crown or remove the tree.

The City will remove trees to protect your property from potential hazards and to prevent tree-related power outages. If the City has a need to remove a tree on your property because of a potentially hazardous situation, the City will contact you ahead of time. The City will not charge you for the removal.

Vines

Vines growing on utility poles pose a danger to line workers and the public. If the vines grow into the high voltage wires, they can conduct electricity to the ground. They also pose a climbing hazard for any line worker performing maintenance on electric, phone or cable lines. The City will remove vines from poles during each routine tree-trimming cycle. You can help by keeping vines from growing near poles.

Ground-level Equipment

The City asks that you avoid planting any kind of vegetation within 8 feet of our green metal boxes that contain pad-mounted equipment. Please don't let any invasive plants grow over the top of the equipment, which can prevent us from opening the door. For the safety of our line workers, the City will need to remove any vegetation that poses a hazard. Keeping the space around this equipment clear has the added benefit of allowing the City of Shasta Lake Electric crews to restore power to you and your neighbors more quickly during an outage.

Herbicide Management

General

The full width of the established right of way should be treated with selective herbicide spraying to control woody-type "trees" and "brush". All vines on poles, guy wires and overhead stub poles should be treated on entire circuit. All equipment, herbicides, personnel, and materials necessary to perform the work shall be supplied by the contractor. Contractor employees involved in the application of herbicides and/or adjuvants must have all federal, state and local licenses, certificates and permits that are required by law. A licensed commercial pesticide applicator (MS) shall always be present on the job. In the event the property owners object to herbicide treatment of undesirable tree or brush species, the work shall be postponed for that area. Such problems shall be reported to City of Shasta Lake immediately. Contractors shall be responsible for any off right of way and/or chemical drift type damages. Contractors are fully responsible for proper disposal of all chemicals and containers. Contractors shall be responsible for locating sensitive and/or restricted non-vegetative right of way areas where herbicides, as specified on the manufacturer's label, should not be applied. All herbicide mixtures and formulations will be applied according to label directions and/or to manufacturers' recommendations. Under no circumstances shall herbicides be applied at rates exceeding label recommendations. Herbicides to be used shall be selected only from those labeled specifically for use on utility rights of ways.

Wetlands

Only a wetland approved herbicide may be used when spraying within 20' of a stream, river, pond, lake, or wetlands area. Under no circumstances shall any herbicide (wetlands approved or otherwise) be sprayed directly over water where no vegetation exists. Contractor shall not clean equipment, tanks, hoses, or other materials related to herbicide applications in streams, rivers, ponds, lakes, or wetland areas.

Documentation

Contractor shall provide City of Shasta Lake herbicide reports of all applications. Reports shall contain the following information: the location of herbicide application, the date applied, the amount applied, the name of each herbicide being applied and the name of the certified applicator.

Transmission Rights of Way and Integrated Vegetation Management

Vegetation Management of Transmission Rights-of-Way

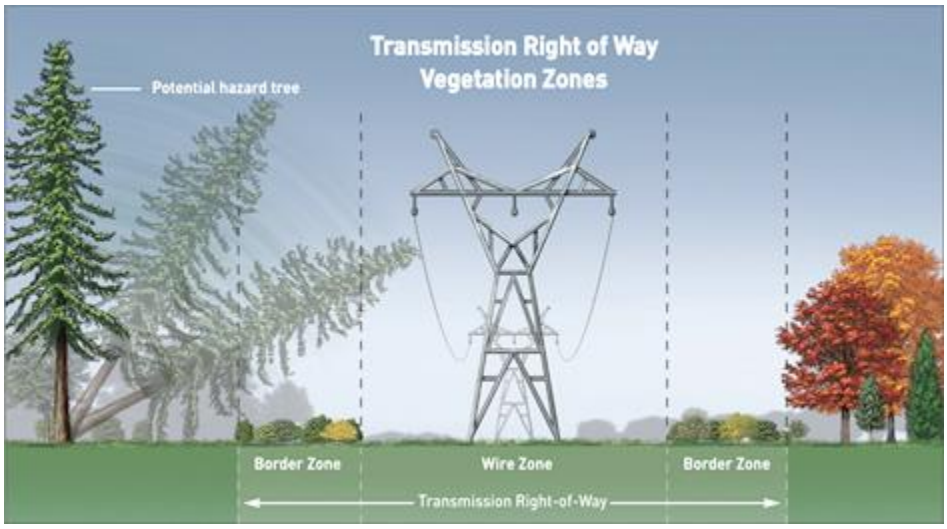
The City of Shasta Lake Electric Department utilizes a program of Integrated Vegetation Management (IVM) to manage vegetation on transmission rights-of-ways. Properly maintained right-of-way's (ROW) are essential for the safety of the public and our workers. The long-term goal of our vegetation management program is to provide for public safety, worker safety, and environmental safety while providing for reliable service.

Integrated Vegetation Management

The first step to creating a low growing plant community is to clear rights-of-way of tall growing and incompatible plant species. This is typically accomplished either mechanically or manually. Cutting or mowing alone is ineffective because it encourages the biological response of re-sprouting. After clearing, right-of-way's are monitored for re-sprouting and reinvasion by incompatible vegetation. Once this occurs, the right-of-way will be enhanced through various methods to provide the desired outcome of a low growing plant community. Many factors are considered before an appropriate method is chosen and implemented.

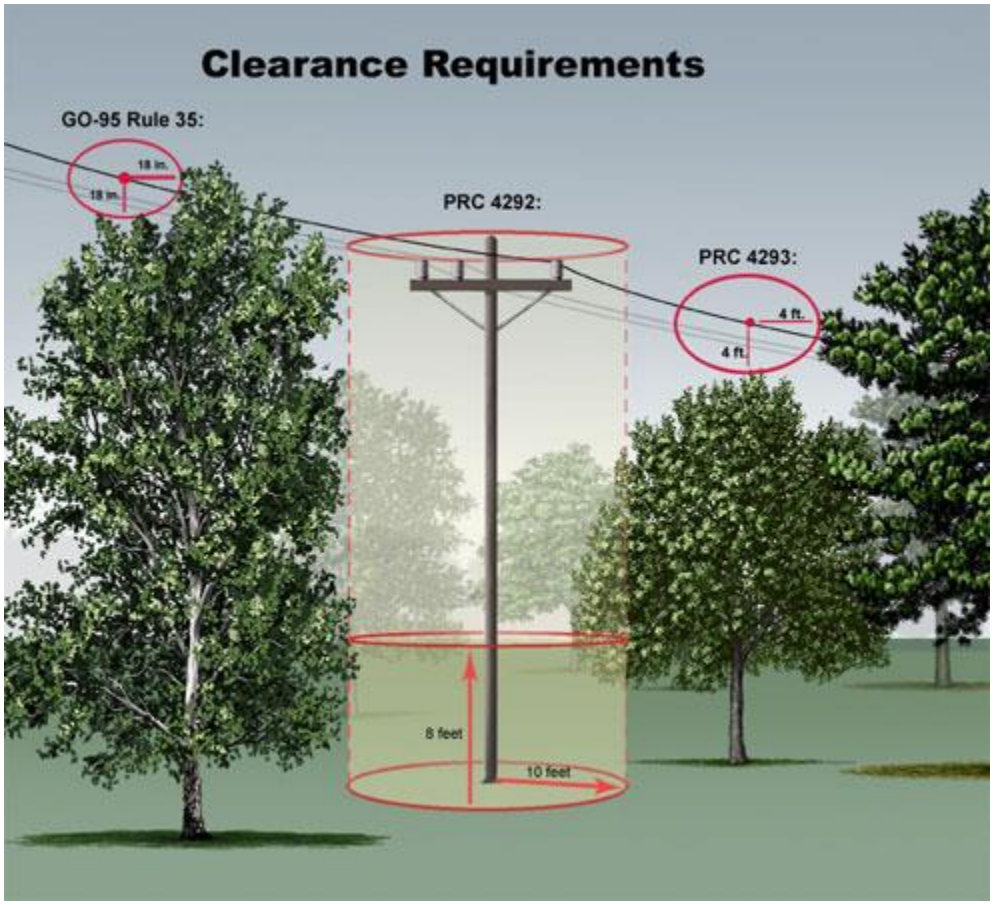
The Wire Zone Border Zone

The Wire Zone consists of low-growing shrub and grass communities directly under the transmission wires plus approximately 15' on both sides. The Border Zone, which is the portion of the right-of-way that extends from 10' outside of the wire to the edge of the ROW, is managed for taller shrubs, and brush plant community. This is the transition zone between the low-growing vegetation and taller.



Laws and Regulations

The City of Shasta Lake Electric Department is a California-based utility that follows the guidelines set forth by the California Public Utilities Commission (CPUC). The City of Shasta Lake Electric Department will obtain a reasonable amount of clearance beyond the minimum requirements to allow for several years' worth of growth, potential wind sway and other environmental factors. Distance obtained from the line after a pruning cycle may be more than 20 feet for fast growing species such as a mulberry or eucalyptus trees along distribution lines and for high voltage transmission lines 4 years or 40 feet of clearance is required.



There are rules and regulations designed to ensure public safety and electric service reliability. Major regulations covering vegetation management include:

- **Public Resource Code 4292: Firebreak Clearing**
  Utilities are required to maintain firebreaks around poles located in wild land areas during fire season that have certain equipment with the potential to emit sparks when operating properly.
- **Public Resource Code 4293: State Responsibility**
  Utilities are required to maintain clearance between vegetation and high voltage power lines during fire season in wild land areas to prevent wild fires. Also requires removal of dead, diseased or dying trees that could fall into power lines.
- **General Order 95: Utility Vegetation Management Requirements**
  Utilities are required to maintain clearance between vegetation and high voltage power lines at all times in all areas for public safety and electric system reliability.

- **North American Electric Reliability Council (NERC) Standard FAC-003-1: Transmission Vegetation Management Standard**
  FAC-003-1 is a Federal Energy Regulatory Commission (FERC) mandated standard, enforced by NERC which requires utilities to take preventative action to reduce widespread outages caused by vegetation conflicts on critical electric transmission lines over 60,000 volts. Utilities must have a formal vegetation management program that meets specific standards and maintains required clearances between vegetation and transmission electric facilities at all times in all conditions.

Public Resource Code, Section 4292: Power Line Hazard Reduction

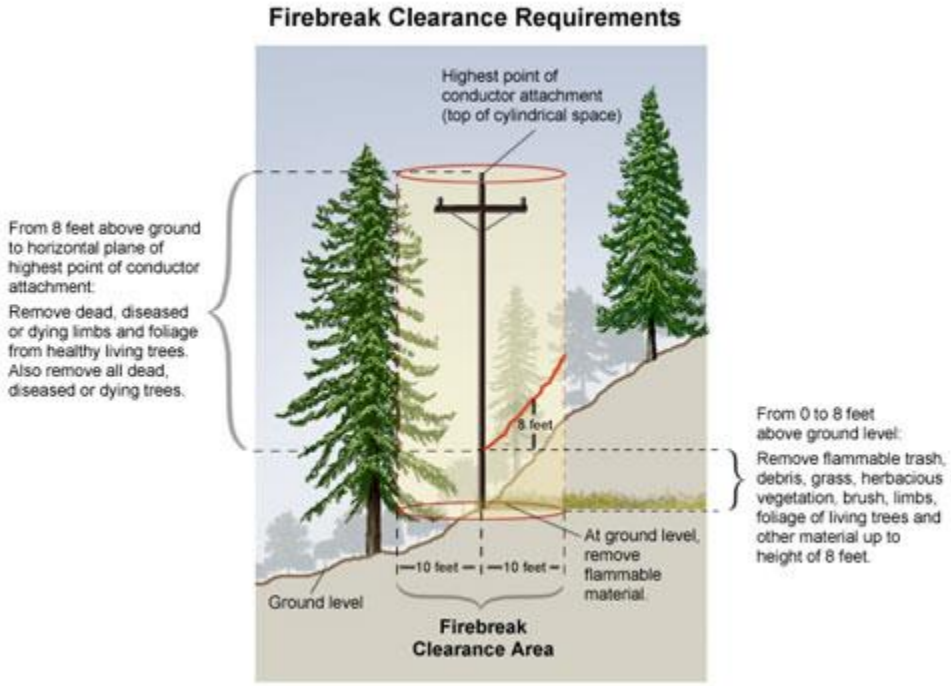
Except as otherwise provided in Section 4296, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such pole or tower. This section does not, however, apply to any line which is used exclusively as telephone, telegraph, telephone or telegraph messenger call, fire or alarm line, or other line which is classed as a communication circuit by the Public Utilities Commission. The director or the agency which has primary fire protection responsibility for the protection of such areas may permit exceptions from the requirements of this section which are based upon the specific circumstances involved.

Section 1254 - Minimum Clearance Provisions

The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of 14, CCR, 1255 or PRC 4296. The radius of the cylindroid is 3.1 m (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- (a) At ground level - remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will propagate fire, and;
- (b) From 0 - 2.4 m (0-8 feet) above ground level remove flammable trash, debris or other materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 m (8 feet).
- (c) From 2.4 m (8 feet) to horizontal plane of highest point of conductor attachment remove dead, diseased or dying limbs and foliage from living sound trees and any dead, diseased or dying trees in their entirety.

Figure 1: Graphical representation of Section 1254 showing the minimum clearances required around a utility pole.



Public Resource Code, Section 4293: Line Clearance Guidelines

Except as otherwise provided in Sections 4294 to 4296, inclusive, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such areas, maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:

- (a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, four feet.
- (b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, six feet.
- (c) For any line which is operating at 110,000 or more volts, 10 feet.

In every case, such distance shall be sufficiently great to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or pruned so as to remove such hazard. The director or the agency which has primary responsibility for the fire protection of such areas may permit exceptions from the requirements of this section which are based upon the specific circumstances involved.

General Order 95, Rule 35: Tree Pruning

Where overhead wires pass through trees, safety and reliability of service demand that tree pruning be done in order that the wires may clear branches and foliage by a reasonable distance. The minimum clearances established in

Table 1, Case 13, measured between line conductors and vegetation under normal conditions, shall be maintained. (Also see Appendix E for tree pruning guidelines.)

When a utility has actual knowledge, obtained either through normal operating practices or notification to the utility, dead, rotten and diseased trees or portions thereof, that overhang or lean toward and may fall into a span, should be removed.

Communication and electric supply circuits, energized at 750 volts or less, including their service drops, should be kept clear of limbs and foliage, in new construction and when circuits are reconstructed or repaired, whenever practicable. When a utility has actual knowledge, obtained either through normal operating practices or notification to the utility, that any circuit energized at 750 volts or less shows strain or evidences abrasion form tree contact, the condition shall be corrected by slacking or rearranging the line, pruning the tree or placing mechanical protection or the conductor(s).

EXCEPTIONS:

1. Rule 35 requirements do not apply to conductors, or aerial cable that complies with Rule 57.4-C, energized at less than 60,000 volts, where pruning or removal is not practicable, and the conductor is separated from the tree with suitable materials or devices to avoid conductor damage by abrasion and grounding of the circuit through the tree.
2. Rule 35 requirements do not apply where the utility has made a "good faith" effort to obtain permission to prune or remove vegetation but permission was refused or unobtainable. A "good faith" effort shall consist of current documentation of a minimum of an attempted personal contact and a written communication, including documentation of mailing or delivery. However, this does not preclude other action or actions from demonstrating "good faith". If permission to prune or remove vegetation is unobtainable and requirements of exception 2 are met, the utility is not compelled to comply with the requirements of exception 1.
3. The Commission recognizes that unusual circumstances beyond the control of the utility may result in nonconformance with the rules. In such cases, the utility may be directed by the Commission to take prompt remedial action to come into conformance, whether or not the nonconformance gives rise to penalties or is alleged to fall within permitted exceptions or phase-in requirements.

   Note: Revised November 6,1992, by Resolution No. SU-15, September 20, 1996, by Decision No. 96-09-097 and January 29, 1997, by Decision No. 97-01-044.
4. Mature trees whose trunks and major limbs are located more than six inches, but less than 18 inches, from primary distribution conductors are exempt from the 19-inch minimum clearance requirement under this rule. The trunks and limbs to which this exemption applies shall only be those of sufficient strength and rigidity to prevent the trunk or limb from encroaching upon the six-inch minimum clearance under reasonable, foreseeable local wind and weather conditions. The utility shall bear the risk of determining whether this exemption applies, and the Commission shall have the final authority to determine whether the exemption applies in any specific instance, and to order hat corrective action be taken in accordance with this rule, if it determines that the exemption does not apply.

   Note: Added October 22, 1997, by Decision No. 97-10-056.

Appendix E

The following are guidelines to Rule 35.

The radial clearances shown below are minimum clearances that should be established, at time of pruning, between the vegetation and the energized conductors and associated live parts where practicable.
Vegetation management practices may make it advantageous to obtain greater clearances than those listed below:

A. Radial clearances for any conductor of a line operating at 2,400 or more volts, but less than 72,000 volts 4 feet

B. Radial clearances for any conductor of a line operating at 72,000 or more volts, but less than 110,000 volts 6 feet

C. Radial clearances for any conductor of a line operating at 110,000 or more volts, but less than 300,000 volts 10 feet

D. Radial clearances for any conductor of a line operating at 300,000 or more 15 feet

Table1:

Radial Clearances				
		Wire or Conductor Concerned		
Case No.	**Nature of Clearance**	**A Span Wires (Other than Trolley Span Wires) Overhead Guys and Messengers**	**B Communication Conductors (Including Open Wire, Cables and Service Drops), Supply Service Drops of 0 - 750 Volts**	**C Tolley Contact, Feeder and Span wires, 0 - 5,000 Volts**
13	Radial clearance of bare line conductors from tree branches or foliage (aaa)(ddd)	--	--	18 inches (bbb)

Radial Clearances					
		Wire or Conductor Concerned			
Case No.	**Nature of Clearance**	**D Supply Conductors of 0 - 750 Volts and Supply Cables Treated as in Rule 57.8**	**E Supply Conductors and Supply Cables, 750 - 22,500 Volts**	**F Supply Conductors and Supply Cables, 22.5 - 300 kV**	**G Supply Conductors and Supply Cables, 300 - 550 kV(mm)**
13	Radial clearance of bare line conductors from tree branches or foliage (aaa) (ddd)	--	18 inches (bbb)	1/4 pin spacing shown in table 2, Case 15 (bbb) (ccc)	1/2 pin spacing shown in table 2, Case 15

(aaa) Special requirements for communication and supply circuits energized at 0 - 750 volt

(bbb) May be Reduced for conductor of less than 60,000 volts when protected from abrasion and grounding by contact with tree.

(ccc) For 22.5 kV to 105 kV, minimum clearance shall be 18 inches.

(ddd) Clearances in this case shall be maintained for normal annual weather variations, rather than at 60 degrees, no wind.

SHASTA LAKE ELECTRIC UTILITY TREE PLANTING GUIDELINES FOR NEW DEVELOPMENT

- **OVERHEAD ELECTRIC LINES**

  New trees less than 20 feet from overhead high voltage lines (12000 Volts) should be selected to have a height of 25 feet or less when fully grown. Ground separation distances may need to be increased for trees of larger canopy to maintain 10 feet of safe clearance from limbs at all times.

  TREE SELECTOR WEBSITE: http://selectree.calpoly.edu

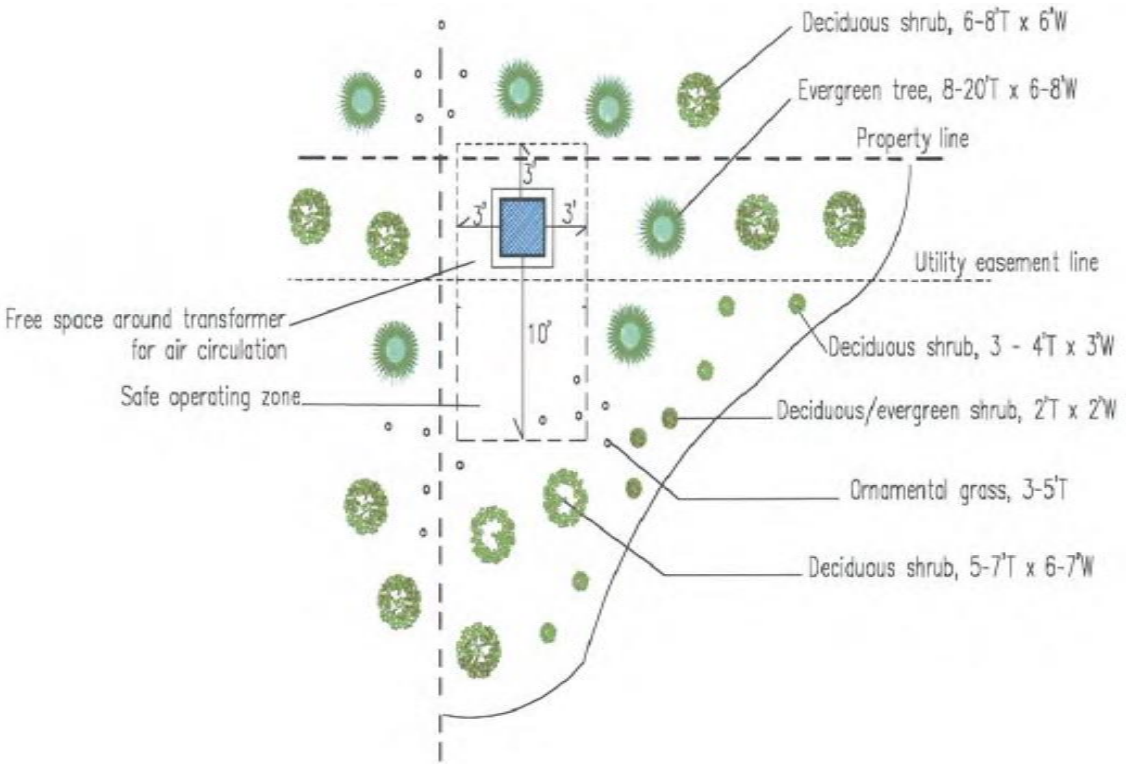
- **UNDERGROUND ELECTRIC LINES**

  Adequate room to operate electrical equipment is important to the reliability of the electric service and for the linemen to work safely. The linemen use long 8 foot fiberglass sticks to operate the equipment live when trouble is found or when system maintenance is required.

Planting near Pad Mounted Transformers

-10 feet of clearance is needed on transformer front

-3 feet on back and sides



NOTE: Pad mounted switches (PME/PMH style etc.) require 10 feet on both front and back to operate. Underground utility high voltage electric boxes/vaults should be located 10 feet from trees to avoid root damage and provide appropriate access.